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EXAMINER	
NGUYEN, DAVID Q	
ART UNIT	**PAPER NUMBER**
2681	12

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/536,275	WANG, ARTHUR W.	
	Examiner	Art Unit	
	David Q Nguyen	2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21,23 and 25-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *22 and 24* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-34 have been considered but are moot in view of the new ground(s) of rejection.

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-21,23,25-34 drawn to a communication system and method comprising a plurality of satellites located in an elliptical sub-geosynchronous orbit with respect to the earth, said satellites operating in a service area in a synchronized manner to provide continuous coverage to said service area ; said satellite generating a plurality of beams with variable beam widths to obtain a substantially uniform cell size covering said service area, classified in class 455, subclass 12.1

   II. Claims 22 and 24, drawn to a method of providing a system of inclined eccentric sub-geosynchronous satellite orbits above the earth, the method handing over operation from the first satellite to the second satellite to maintain at least the minimum elevation angle, classified in class 244, subclass 158.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be

separately usable. In the instant case, invention I has separate utility such as improving the quality of service for a transmission of loss sensitive data. See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mrs. Vijayalakshmi D. Duraiswamy (Reg. No. 31505) on Feb 10, 2004 a provisional election was made with traverse to prosecute the invention of group I, claims 1-21,23 and 25-34. Affirmation of this election must be made by applicant in replying to this Office action. Claims 22 and 24 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

2. Claims 5,7 and 9-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5, "said minimum elevation angle" has no antecedent basis.

In claim 7, "said first plurality of satellites" has no antecedent basis.

In claim 9, "said first plurality" has no antecedent basis.

In claim 10, "said first plurality" has no antecedent basis.

In claim 11, "said first plurality" has no antecedent basis.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1,3,6-7,9-13,17,19-21,23,25-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Castiel et al. (US 2002/0160710).

Regarding claim 1, Castiel et al disclose a communications system comprising: a plurality of regional ground stations (fig. 1; col. 4, paragraph 0062); a plurality of satellites located in an elliptical sub-geosynchronous orbit with respect to the earth, said satellites

operating in a service area in a synchronized manner to provide continuous coverage to said service area (see fig. 1; paragraphs 0003 and 0004; paragraph 0143); said satellite generating a plurality of beams with variable beam widths to obtain a substantially uniform cell size covering said service area (see fig. 1; paragraphs 0003 and 0004; paragraph 0062 and 0068); and a plurality of user terminals within the service area receiving communication signals from satellite (see fig. 1 and paragraph 0004).

Regarding claim 12, Castiel et al disclose a communications system comprising: a first plurality of satellites located in an elliptical sub-geosynchronous orbit with respect to the earth, said satellites operating in a service area in a synchronized manner to provide continuous coverage to said service area (see explanation in claim 1); said satellites generating a plurality of beams with variable beamwidth to obtain a substantially uniform cell size covering said service area (see explanation in claim 1); said first plurality of satellites providing a first system capacity (see fig. 4g); and a second plurality of satellites deployed after said first plurality of satellites, said second plurality of satellites providing a second system capacity greater than the first system capacity (see fig. 4g).

Regarding claim 25, Castiel et al disclose a method of developing a customized satellite constellation comprising the step of: developing a first satellite constellation having a first set of satellites having regional coverage having a first service area, wherein said first constellation comprises a first plurality of satellites located in an elliptical sub-geosynchronous orbit with respect to the earth, said satellites operating in a service area in a synchronized manner to provide continuous coverage to said service area; said satellites generating a plurality of beams with variable beam widths fromed as a funtion of orbit position to obtain a substantially uniform

cell size covering said service area (see explanation in claim 1 and 12); launching a second set of satellite to form a second satellite constellation having primary market coverage in cooperation with said first set of satellites to have a second service area greater than said first service area (see explanation in claims 1 and 12; see fig. 4g).

Regarding claim 32, Castiel et al disclose a communications system comprising: a plurality of regional ground stations; a plurality of satellites located in an elliptical sub-geosynchronous orbit with respect to the earth, said satellites operating in a service area in a synchronized manner to provide continuous coverage to said service area, said satellites generating a plurality of beams with variable beam widths that vary as a function of orbital position to obtain a substantially uniform cell size covering said service area; and a plurality of user terminals with the service area receiving communication signals from the satellite (see expalanation in claim 1).

Regarding claims 3 and 13, the communications system of Castiel et al also discloses that the uniform cells are substantially fixed within the service area (see paragraphs 0003 and 0004).

Regarding claim 6, the communications system of Castiel et al also discloses that within said service area is a primary market area (see fig. 7's).

Regarding claims 7 and 17, the communications system of Castiel et al also discloses that the plurality of satellites comprises a phase array to form said plurality of beams (see paragraph 0068).

Regarding claims 9-11 and 19-21, the communications system of Castiel et al also discloses that the plurality comprises less than 9 satellites; and the plurality comprises 4

satellites, 5 satellites; and said first plurality comprises less than 9 satellites; and the plurality comprises 4 satellites, 5 satellites (see paragraph 0104 and fig. 4g).

Regarding claim 23, the communications system of Castiel et al also discloses wherein said orbits is inclined eccentric sub-geosynchronous orbit (see fig. 4g).

Regarding claims 26 and 27, the method of Castiel et al also discloses launching a third set of satellites to form a third satellite constellation having optimized landmass coverage in cooperation with said first set of satellites and said second; the first constellation, the second constellation and the third constellation comprise SGSO satellites (see explanation in claim 25, fig. 4g).

Regarding claims 28-31, the method of Castiel et al also discloses the first and second set of satellites are non-interfering with GSO satellites; the first plurality of satellites and the second set of satellites have active arcs sized to provide continuous coverage to said second service area and be non-interfering with GSO satellites (see paragraphs 0030-0032)

Regarding claim 33, the communications system also discloses wherein said plurality of satellites operate using a frequency of GSO satellite; (see paragraph 0098 and 101); wherein said plurality of satellite do not operate in GSO satellite avoidance zone (see col. 4, lines 46-55).

4. Claims 4-5 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Castiel et al (US 2002/0160710 A1) in view of Taormina et al. (US patent Number 6257526).

Regarding claims 4 and 14, the communications system of Castiel et al does not disclose the plurality of beams providing equal capacity density to the cell size. However, Taormina et al disclose the plurality of beams providing equal capacity density to the cell size (see fig. 6; col. 5,

lines 66-67; col. 6, lines 1-5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Taormina to the system in order to provide a desired level of coverage.

Regarding claims 5 and 15, the communications system of Castiel et al does not disclose minimum elevation angle is greater than 10 degrees in the service area. However, Taormina et al. disclose the minimum elevation angle is greater than 10 degrees in the service area (see col. 6, lines 25-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Taormina to the system in order to prevent rotation of the line of apsides.

5. Claims 8 and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Castiel et al (US 2002/0160710 A1) in view of Schloemer (US Patent Number RE37140).

Regarding claims 8 and 18, the communications system of Castiel et al does not disclose the satellites are disabled when coextensive with a geostationary orbit. However, Schloemer discloses the satellites are disabled when coextensive with a geostationary orbit (see col. 2, lines 45-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Schloemer to the system in order to keep satellites in their proper orbits.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Castiel et al (US 2002/0160710 A1) in view of Byrne et al. (US Patent Number 5990883).

Regarding claim 2, the communications system of Castiel et al does not disclose the ground station coupled to one selected from the group consisting of an internet service provider, a broadcast television center and a corporate internet. However, Bryne discloses the ground station coupled to one selected from the group consisting of an internet service provider, a broadcast television center and a corporate internet (see fig. 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Bryne to the system in order to provide multimedia program content to users.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Castiel et al (US 2002/0160710 A1) in view of Wainfan et al. (US Patent Number 6339707).

Regarding claim 16, the communications system of Castiel et al does not disclose a primary market area having an elevation greater than thirty degrees. However, Wainfan discloses a primary market area having an elevation greater than thirty degrees (see col. 3, lines 62-63). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above teaching of Wainfan to the system so that satellite service may be more efficiently realized.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Q Nguyen whose telephone number is 703-605-4254. The examiner can normally be reached on 8:30AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 703-305-4040. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

DN

David Nguyen

SINH TRAN
PRIMARY EXAMINER